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REMARKS/DISCUSSION OF ISSUES

This response is intended as a full and complete response to the Office Action mailed August 11, 2006. Claims 1, 3-6, 8-22 and 99-104 are currently pending. As explained below, all of the pending claims are patentable.

I. SPECIFICATION

The specification stands objected to because of the title and the phrase "111 transportable compound" on page 33, lines 5-6. Applicants amended the title and the identified phrase as suggested by the Examiner. Accordingly, Applicants respectfully request withdrawal of the objection.

II. REJECTIONS UNDER 35 U.S.C. § 112 - WRITTEN DESCRIPTION

Claims 1, 3-6, 8-22 and 99-104 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

"End-products" as described at page 10, lines 4-5, refers to a set of compounds that are required for survival of a cell. Similarly, "target compounds... can be compounds essential for viability of a living cell," as recited on page 4, lines 14-15. Therefore, the specification does provide indication that the terms "end-products" and "target compounds" at least can have substantially related meanings. Therefore, the claimed concepts identified by the Examiner on, for example, page 2 of the specification that reference "target compounds" in place of "end-products" clearly conveys to one of ordinary skill in the art that the subject matter claimed conforms to the disclosure as filed.

Moreover, Applicants submit that the term "end-products" taken either alone or in the context of the claims does not represent a departure from the disclosure of the application as filed. The subject matter of the claims need not be described literally (i.e., using the same terms) in order for the disclosure to satisfy § 112, first paragraph. See, M.P.E.P. § 2163.02. One of ordinary skill in the art would recognize that the

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entirety of the description in general supports what is claimed utilizing the term "end-products."

Further, the Examiner states that "the target compounds do not have to be an end product but rather can be a compound from the environment, e.g., the transportable compound," since the target compounds can include a modified protein or proteins that are required for the cell behavior. However, nothing described in the specification makes either "end-products" or "target compounds" exclusive of "transportable compounds." For example, the "end-products" may be produced from chemical reactions or from precursor substrates where the reactant is the product and may be considered a transportable compound. In addition, the Examiner's position that a modified protein or protein that inherently must be a product of a metabolic pathway is always a compound from the environment and hence a transportable compound appears to incorrectly categorize every compound as a transportable compound.

Based on the foregoing, Applicants submit that the claims do not contain new matter. The description clearly allows persons of ordinary skill in the art to recognize that the inventors were in possession, as of the filing date, of what is claimed. Accordingly, Applicants request withdrawal of the rejection and allowance of the claims.

III. REJECTIONS UNDER 35 U.S.C. § 112 - ENABLEMENT

Claims 1, 3-6, 8-22 and 99-104 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement.

As set forth in section II above, the specification does provide adequate description for the identification of "a first set of precursor substrates and/or chemical reactions that are sufficient to produce a set of end-products or a second set of precursor substrates and/or chemical reactions that are insufficient to produce the set of end-products." Regarding guidance on selecting a medium for culturing cells based on this identification, one skilled in the art would understand that the medium contains the precursor substrates and/or enables the chemical reactions of either the claimed first or second set depending on a selection made with respect to supporting viability. For example, page 34, lines 15-20 discuss such concepts. Further, the specification

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provides exact guidance on how to make or use the invention via the numerous functions or inquiries that may be implemented to obtain solutions.

Regarding working examples, the application at page 33 to page 34, line 11, provides results obtained by exemplary modeling of the metabolic pathways of *E. Coli*, which results (based on descriptions at page 18, lines 6-13 and page 19, lines 12-20 along with Figure 2) enable selecting the medium for culturing the *E. Coli* if desired. The Examiner fails to state why one would not expect to be able to extrapolate this example across the entire scope of the claims. See, M.P.E.P. § 2164.02. While the application does contain this working example, the invention is otherwise disclosed by the specification that describes through detailed functions at least one method for making and using the claimed invention that at least bears a reasonable correlation to the entire scope of the claims. See, M.P.E.P. § 2164.01(b).

The nature of the invention and the prior art as pointed out by the Examiner may relate to complex matters. In other words, practicing the invention or generating the model itself may be a complex feat depending on the metabolic pathway. However, this complexity is not an experimentation related to determining how to practice the invention. Further, challenges presented in the prior art and prior art computations not able to be performed with ease lack bearing on the current disclosure. The aforementioned example demonstrates that the invention as described works without any undue experimentation.

With respect to the breadth of the claims relevant to enablement, the only relevant concern according to M.P.E.P. § 2164.08 should be whether the scope of enablement provided to one skilled in the art by the disclosure is commensurate with the scope of protection sought by the claims. Whether a teaching is set forth by specific example or broad terminology lacks importance. *Id.* There is no indication that the disclosure and claims are not commensurate in scope. According to M.P.E.P. § 2164.04, the specification must thus be taken as being in compliance with the enablement requirement unless there is a reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support. In the present application, the general description utilizing functions based on broad terminology is implemented in a working example thereby relieving doubt.

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Therefore, Applicants submit that the claims are enabled. The disclosure, as filed, contains sufficient information regarding the subject matter of the claims as to enable persons of ordinary skill in the art to make and use the invention as claimed without undue experimentation. Accordingly, Applicants request withdrawal of the rejection and allowance of the claims.

IV. REJECTIONS UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

Claims 1, 3-6, 8-22 and 99-104 stand rejected under 35 U.S.C. § 112, second paragraph. The Examiner states that the terms "sufficient" and "insufficient" are relative terms.

In clarifying the metes and bounds of the claims, the terms "sufficient" and "insufficient" by definition describe a definite aspect that is not relative. According to the *Dictionary.com Unabridged (v 1.0.1* at <http://dictionary.reference.com/browse/sufficient>), sufficient describes a condition "such that its existence leads to the occurrence of a given event or the existence of a given thing." While adequate tends toward a qualitative description, sufficient quantitatively identifies the state of being 'enough for something.' In the context of the claims, sufficient means that the first set will produce the end-products and the second set will not produce the end-products. However, Applicants invite the Examiner to call the undersigned representative identified below to discuss a possible Examiner's amendment if amendment of the claims to state, for example, "will" and "will not" instead of "are sufficient" and "are insufficient" would place this application in condition for allowance.

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CONCLUSION

Applicants submit that all claims now pending are in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issuance are earnestly solicited.

If, however, the Examiner believes that any unresolved issues still exist, it is requested that the Examiner telephone the undersigned at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

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